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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,789	11/24/2003	Brian A. Urbach	1-24770	5422

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EXAMINER

RODRIGUEZ, RUTH C

ART UNIT	PAPER NUMBER
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3677

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/720,789	Applicant(s) URBACH, BRIAN A.	
	Examiner Ruth C Rodriguez	Art Unit 3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/24/03 & 5/5/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 24 November 2003 and 05 May 2005 have been considered for this Office Action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 5, 7, 9-15, 17, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt (US 6,439,794 B2).

A ball joint (10) comprises a socket (12), a bearing assembly (30,62), a ball stud (36) and a resilient bushing (68,374). The socket has at least one opening and an inner chamber (Figs. 1, 2, 5 and 7). The bearing assembly is disposed in the chamber of the socket (Figs. 1, 2, 5 and 7). The ball stud has a central ball portion (40) and a stud portion (50,58). The bearing assembly supports the ball portion (Figs. 1, 2, 5 and 7). The resilient bushing is disposed in the chamber and is fixedly attached to the stud portion of the ball stud (Figs. 1, 2, 5 and 7).

Schmidt also discloses that:

- The bushing is disposed in the chamber such that an outer surface of the bushing cannot move relative to the surface of the chamber (Figs. 1 and 2).
- The bushing has a longitudinal bore formed therethrough (Figs. 2, 5 and 7). A sleeve (70) is disposed in the bore of the bushing (Figs. 2, 5 and 7).
- The sleeve is fixedly attached to the bushing (Figs. 2, 5 and 7).
- The stud is slidably disposed in the sleeve (Figs. 2, 5 and 7).
- The ball portion of the ball stud has a first axis and second axis transverse to the first axis (Figs. 1, 2, 5 and 7). An intersection of the first axis and the second axis defines a center of oscillation (Figs. 1, 2, 5 and 7). The ball portion is normally centered on the center of oscillation (Figs. 1, 2, 5 and 7).
- The resilient bushing is formed of a material having a predetermined hardness to thereby apply a restoring force to maintain or retain the ball stud to the normally centered position (C. 5, L. 40-67 and C. 6, L. 1-29).
- The ball joint further includes a seal (420) for sealing the at least one opening of the socket (C. 9, L. 11-15).
- The bearing assembly includes first (30) and second (62) spaced apart bearings member for supporting the ball portion of the ball stud (Figs. 1, 2, 5 and 7).
- The resilient bushing is formed from one of rubber or neoprene (C. 2, L. 32-36).

A ball joint (10) comprises a socket (12), a bearing assembly (30,62), a ball stud (36) and a resilient bushing (68,374). The socket has at least one opening and an inner

chamber (Figs. 1, 2, 5 and 7). The bearing assembly is disposed in the chamber of the socket (Figs. 1, 2, 5 and 7). The ball stud has a central ball portion (40) and a stud portion (50,58). The bearing assembly supports the ball portion (Figs. 1, 2, 5 and 7). The resilient bushing is disposed in the chamber and is fixedly attached to the stud portion of the ball stud (Figs. 1, 2, 5 and 7). The stud is slidably disposed in the sleeve (Figs. 2, 5 and 7). The ball portion of the ball stud has a first axis and second axis transverse to the first axis (Figs. 1, 2, 5 and 7). An intersection of the first axis and the second axis defines a center of oscillation (Figs. 1, 2, 5 and 7). The ball portion is normally centered on the center of oscillation (Figs. 1, 2, 5 and 7). The resilient bushing is formed of a material having a predetermined hardness to thereby apply a restoring force to maintain or retain the ball stud to the normally centered position (C. 5, L. 40-67 and C. 6, L. 1-29).

The bushing disclosed by Schmidt is disposed in the chamber such that an outer surface of the bushing cannot move relative to the surface of the chamber (Figs. 1, 2, 5 and 7).

A tie rod end is used in a vehicle having a steering wheel for controlling steerable wheels (C. 1, L. 16-42). The tie rod end comprises a socket (12), a stem, a bearing assembly (30,62), a ball stud (36) and a resilient bushing (68,374). The socket has at least one opening and an inner chamber (Figs. 1, 2, 5 and 7). The stem extends outwardly from the socket (Figs. 1, 2, 5 and 7). The bearing assembly is disposed in the chamber of the socket (Figs. 1, 2, 5 and 7). The ball stud has a central ball portion (40) and a stud portion (50,58). The bearing assembly supports the ball portion (Figs.

1, 2, 5 and 7). The ball portion of the ball stud has a first axis and second axis transverse to the first axis (Figs. 1, 2, 5 and 7). An intersection of the first axis and the second axis defines a center of oscillation (Figs. 1, 2, 5 and 7). The ball portion is normally centered on the center of oscillation (Figs. 1, 2, 5 and 7). The resilient bushing is disposed in the chamber and is fixedly attached to the stud portion of the ball stud (Figs. 1, 2, 5 and 7). The resilient bushing is formed of a material having a predetermined hardness to thereby apply a restoring force to maintain or retain the ball stud to the normally centered position (C. 5, L. 40-67 and C. 6, L. 1-29). The ball stud is caused to rotate about the first axis when a torsional force is applied to the ball stud by turning of a vehicle steering wheel (C. 1, L. 16-42, C. 5, L. 40-67 and C. 6, L. 1-29).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt.

Schmidt discloses a ball joint having all the limitations listed above in paragraph 2 for the rejection of claim 1. Schmidt discloses a sleeve disposed between the bushing and the stud portion (Figs. 2, 5 and 7). Schmidt fails to disclose that the sleeve is fixedly attached to the bushing with an adhesive. However, it would have been obvious

to one having ordinary skill in the art at the time the invention was made to use an adhesive to fixedly attach the bushing to the sleeve since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. In this case, the use of adhesive to fixedly attach two components is well known in the art.

6. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Gair (US 4,154,544).

Schmidt discloses a ball joint having all the features mentioned above for the rejection of claim 1. Schmidt fails to disclose how the ball stud is made and therefore Schmidt fails to disclose that the ball portion of the ball stud has a bore formed therethrough and the stud portion is disposed within the bore. However, it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to provide a ball portion of the ball stud having a bore formed therethrough and the stud portion is disposed within the bore since such a construction is well known in ball joint art as taught by Gair. Gair teaches a ball joint having a socket (21), a bearing assembly (71) and a ball stud (20,60). The ball stud comprises a ball portion (60) and a stud portion (20). The ball portion of the ball stud has a bore (63) formed therethrough and the stud portion is disposed within the bore (Figs. 1-4). Such a construction allows movement of the ball portion relative to the ball stud (Abstract).

7. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Westercamp (US 3,396,554).

The ball joint disclose by Schmidt has all the limitations listed above in paragraph 2 for the rejection of claim 1. Schmidt fails to disclose that the stud portion has at least one key and that the sleeve has at least one key way. However, the use of one key and one key way is well known in the ball joint art for the construction of its part as taught by Westercamp. Westercamp teaches a ball stud construction where the ball stud comprises a stud portion (10) including at least one key (12) provided on an outer surface thereof and a ball portion (22) including at least one keyway (20) provided on an inner surface thereof (Figs. 1-3). The key of the stud portion is slidably disposed in the keyway of the sleeve (Figs. 1-3). Such a construction keeps the stud portion secured to the ball portion without allowing rotation between the two parts (C. 2, L. 3-14). Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to have the stud portion including at least one key provided on an outer surface thereof and the sleeve including at least one keyway provided on an inner surface thereof such that the key of the stud portion is slidably disposed in the keyway of the sleeve in accordance with the teaching of Westercamp for the ball stud of Schmidt. Doing so, keeps the stud portion secure to the ball portion without allowing rotation between the two parts.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Herbenar (US 2,846,251, US 3,041,094, US 3,790,195 and US 3,945,737), Melton et al. (US 3,408,124), Jorn et al. (US 4,007,924), Krieg et al. (US 5,028,163), Eifert et al. (US 5,509,749), Henkel et al. (US 5,529,420), Kincaid et al. (US 5,597,258) and Schmidt (US 6,439,794 B2) are cited to show state of the art with respect to ball joints having bushing to biased them to a normally centered position.

Gair (US 4,154,544) is cited to show state of the art with respect to a ball stud for a ball joint where the ball stud has a ball portion having a bore formed therethrough and a stud portion is disposed within the bore

Westercamp (US 3,396,554) is cited to show state of the art with respect to a stud portion further includes at least one key provided on an outer surface thereof and a sleeve includes at least one keyway provided on an inner surface thereof. The key of the stud portion is slidably disposed in the keyway of the sleeve.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth C Rodriguez whose telephone number is (571) 272-7070. The examiner can normally be reached on M-F 07:15 - 15:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on (571) 272-7075.

Submissions of your responses by facsimile transmission are encouraged. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase the patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such

submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as PTO's mailroom processing and delivery time. For a complete list of correspondence **not** permitted by facsimile transmission, see MPEP § 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee that the applicant is paying by check **should not be** submitted by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MPEP § 512). The following is an example of the format the certification might take:

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(Typed or printed name of person signing this certificate)

(Signature)

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-6640.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ruth C. Rodriguez
Patent Examiner
Art Unit 3677

rcr
May 31, 2005